REMARKS

The issues outstanding in the Office Action mailed October 24, 2003, are the rejections under 35 U.S.C. 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested. At the outset, the Examiner is thanked for indicating withdrawal of the restriction requirement in part. It is understood that, once the product claims are allowed, the methods of demultiplexing will be rejoined for examination.

Claims 1-12 have been rejected under 35 U.S.C. 103 over Mennemann '161. Reconsideration of this rejection is respectfully requested.

As noted at page 3 of the Office Action, Mennemann discloses its compositional space in terms of weight percent, rather than mole percent. However, it is respectfully submitted that it would *not* be obvious to select glasses whose compositional space is within the range of the present claims, in view of this disclosure, regardless of any arguable overlap.

First, the Office Action does not perform the conversion from wt. percent to mole percent as alleged to be obvious. Thus, the Office Action does not demonstrate that the compositional ranges in weight percent of Mennemann would, in fact, overlap those compositional ranges given in mole percent in the present application. The reason for this failure is that it is virtually impossible to do such a conversion, for a compositional space wherein the various components are given as *ranges* as opposed to as single value. Moreover, even if the Office Action is correct that there is overlap which could create a *prima facie* case of obviousness, it is clear that, where the overlap is not in all aspects of the composition, so that selections need to be made in determining which of the overlapped portions are selected so as to arrive at a composition within in the scope of a later claim, overlap alone is insufficient to support obviousness. For example, see *In re Jones*, 21 U.S.P.Q. 2d 1941 (Fed. Cir 1992), in which the Federal Circuit held that there is no general rule that an overlapping genus renders a sub-portion of that genus obvious, unless there is motivation for one of ordinary skill in the art to select the particular portion alleged to be obvious.

In the present situation, the "overlapping" broad disclosure of Mennemann does not totally overlap the present claims.

In the broadest disclosure of Mennemann, at column 2, lines 28-45, patentees disclose a compositional space having 0-15% magnesium oxide, and do not mention yttrium. In "various preferred aspects", disclosed at lines 46+ of column 2, through column 4, line 14, patentees disclose amounts of magnesium of 0-4%, 1-6%, and 4-7%. The only preferred disclosure which explicitly mentions yttrium (Y_2O_3), at column 2, line 64 through column 3, line 15, discloses a compositional space having, i.a., 1-6% magnesium oxide, and 0-4% yttrium. This disclosure, which requires Mg and does not require Y, falls far short of providing any "overlap", and of suggesting to one of ordinary skill in the art the compositional space presently claimed, which requires the presence of yttrium while, at the same time, excluding magnesium. See, for example, claims 1, 5 and 9. (It is noted that claim 9 requires an amount of gadolinium, lanthanum and/or yttrium of at least 2.7%. Gadolinium is not disclosed at all in Mennemann, lanthanum is disclosed only in the preferred compositional space at the top of column 4, where an amount of "0 to 8" weight percent is given. Thus, even the preferred disclosure Mennemann does not suggest this claim.) Nowhere in the broad or preferred disclosure of Mennemann is a compositional space taught which requires a minimum amount of yttrium (or yttrium plus gadolinium plus lanthanum) greater than 0 *and* simultaneously a magnesium content of zero.

Of course, one of ordinary skill in the art would also look to the examples of the patent, *Jones, supra*. The examples of Mennemann, given in tables 1 and 2 at columns 5-8 of the patent, because they contain specific compositional spaces, can be converted from weight percent to mole percent, and have been so converted in the appendix. Tellingly, in *all* of these examples, magnesium is required. Moreover, in the four examples which do actually employ yttrium, examples 13-16, only a miniscule amount is employed. One of ordinary skill in the art, in view of these examples, is provided *no* motivation to eliminate magnesium from the compositions, particularly where yttrium is present. Moreover, one of ordinary skill in the art is in no way motivated by these examples to employ amounts of yttrium which are substantially greater than the miniscule amounts of examples 13-16. Compare newly added independent claims 29-32. These claims are supported by the present examples and original claim 7, disclosing values of yttrium as claimed.

As a result, it is evident that one of ordinary skill in the art is provided no direction to the

compositional space presently claimed, requiring yttrium and prohibiting magnesium, particularly in the amounts of, for example, newly added claims 29-32. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5-12, 14, 15, 17, 18, 24 and 25 have been rejected under 35 U.S.C §103 over Lin '173. Reconsideration of this rejection is also respectfully requested.

As admitted at page 4 of the Office Action, Lin fails to teach any anticipatory examples or compositional ranges sufficiently specific to anticipate the present invention. Indeed, Lin's incredibly broad disclosed ranges ("0-20% of any non-color generating heavier oxides", paragraph 30) are so broad as to provide no meaningful direction to one of ordinary skill. As above, it is submitted that any arguable overlap of this broad compositional space, without some direction to the particular space presently claimed, is insufficient to establish a *prima facie* case of obviousness where one of ordinary skill in the art must judiciously make selections from the compositional space in order to arrive at the present claims, without some motivation of direction from the art to do so. Such judicious selection clearly must be made in the present situation, in view of the extremely broad disclosure. Yet, the narrower disclosure and examples do not guide one of ordinary skill to the presently claimed space. For example, *none* of the examples of the disclosure contain yttrium. The only disclosure of yttrium in the application is in paragraph 57, where it is indicated that other components can be added, including eleven different oxides, of which yttrium is listed, in an amount of "approximately 0 to 8 mole percent." This disclosure thus falls short of suggesting that some yttrium affirmatively be used, particularly in a composition where there is no magnesium, inasmuch as magnesium is used in various examples of the application, and yttrium is not. See, for example, tables 4 and 6 at page 5.

The failure to teach the absence of Mg and the presence of Y is not the only short coming of Lin, however. The preferred composition in examples of the application also differ from the compositional spaces presently claimed, in other significant aspects. For example, in paragraph 31 of the application, the preferred composition contains 12.7 percent calcium and 7.3 percent strontium oxides, while claim 1 of the present application requires a total of five oxides including strontium and calcium of 0 to no more than 10 mole percent; claim 3 an amount of Sr and Ca 0-5 mole percent, claim 5 an amount of Sr and Ca of 0-10 percent, claim 7 an amount of Sr and Ca of

0-5 mole percent and claim 9 no more than 8 percent calcium oxide. Thus, one of ordinary skill in the art would have to still further adjust this preferred composition of Lin in order to produce the material within the claimed compositional space of these claims. Moreover, the examples of the application provide no better direction, inasmuch as amounts of calcium, strontium and barium in the examples are well beyond these limits. See, for example, tables 2A, 2B and 3 where the total amounts of calcium, strontium and barium are outside the present claims. Similar issues apply to tables 4, 5 and 6 at page 5 of the application and Table 7A at page 6. Moreover, table 6 contains only examples with significant amounts of magnesium oxide. See also table 7B at page 6. One of ordinary skill in the art thus finds, in view of this disclosure, no motivation to make the selections necessary to result in compositional space within the present claims. Moreover, as noted above, none of the examples of this patent suggest the use of yttrium, despite the broad-brush incidental mention of yttrium in the disclosure.

Withdrawal of this rejection is therefore also respectfully requested.

Finally, claims 1-18 and 23-25 have been rejected under 35 U.S.C §103 over Goto '733. Reconsideration of this rejection is also respectfully requested.

Goto also contains a broad disclosure in weight percent, making it difficult to assess whether overlap exists. In any event, this disclosure is to broad, without more, to establish a *prima facie* case of obviousness. For example, at column 2, lines 27-29, patentees indicate that the composition contains "one or more ingredients selected from the group consisting of TiO_2, La_2O_3, ZrO_2, Nb_2O_2, Nb_2O_5, Ta_2O_5, WO_3 and Y_2O_3 in the total amount of 20-45%". From this broad disclosure, one of ordinary skill in the art must select an amount of Y_2O_3 within the scope of the present claims. Moreover, patentees disclose "one or more ingredients selected from the group consisting of MgO, CaO, SrO, BaO and AnO in the total amount of 3-20%" from which one of ordinary skill in the art must select *no* MgO. Thus, as with the above discussed references, this arguable overlap with the presently claimed ranges is insufficient, in and of itself, to establish a case of *prima facie* obviousness, *without* motivation from one of ordinary skill in the art to make the necessary selections. See *Jones, supra.*

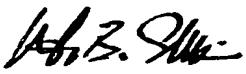
Inasmuch as the preferred disclosure of the patent, found at column 3, line 62 through column 4, line 38 is not substantially narrower than the broad disclosure, one of ordinary skill in

the art would turn to the examples for guidance. Since the examples disclose specific compositions, the values of the components therein can be converted to mole %, as shown in the appendix containing tables equivalent to the tables at columns 5-8 of the patent. It is telling that in all three tables of examples, significant differences between the disclosure of the patent and the present claims can be seen. For example, amounts of titanium dioxide far in excess of that permitted claim 1 are used. In the only two examples which employ yttrium, example 3 in table 1 and example 2 in table 2, one of ordinary skill in the art is not taught to make the other necessary modifications to arrive at a composition within the present claims. For example, in example 3 of table 1, titanium is well beyond the limits of any of the present claims. Moreover, this example contains magnesium. Similarly, example 2 of table 2 contains magnesium. This example is even further away from claim 5, containing an amount of boron beyond the space claimed. With respect to claim 9, this example is yet still further outside the space, containing less silicon and more boron, as well as excess lanthanum. Again, one of ordinary skill in the art simply has no reason or motivation to make the various selection necessary to arrive at a composition within the presently claimed space. And, as discussed above, this is even more true for the newly added claims with amounts of yttrium well beyond disclosed in the examples. Accordingly, withdrawal of this rejection is also respectfully requested.

It is therefore submitted that the claims are condition for allowance. However, if the Examiner has any questions or comments, she is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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FILED: February 12, 2004

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Mennemann US 4,562,161
Weight to Mole% Calculations

Smelting Example (mole%)

Oxide	mole %
SiO2	51.47
B2O3	9.59
Li2O	18.12
Na2O	1.77
MgO	5.80
CaO	4.39
Al2O3	0.81
TiO2	4.53
ZrO2	0.22
Nb2O5	0.14
NaF	3.17

Table 1 Embodiment Examples (mole%)

Oxide	1	2	3	4
SiO2	57.54	51.49	61.32	49.50
B2O3	6.34	9.59	1.65	7.00
Al2O3	0.87	0.81	0.93	
P2O5				
Li2O	18.52	18.12	22.02	21.82
Na2O	2.80	1.77	1.86	
K2O				
MgO	5.04	5.80	3.74	8.25
CaO	1.75	4.39	1.86	6.60
ZnO				
TiO2	3.40	4.53	3.26	2.71
ZrO2		0.19		
Nb2O5	0.35	0.14	0.19	0.14
NaF	3.40	3.17	3.12	3.93
SnO2				
As2O3			0.06	0.05
Sb2O3				

Table 2 (mole%)

Oxide	11	12	13	14	15	16	17	18
SiO2	60.52	57.08	56.55	52.23	55.33	57.02	57.29	57.35
B2O3	5.21	6.79	6.89	6.85	5.37	6.47	6.39	5.54
Al2O3	0.71	0.75	0.72	1.54	1.24	1.06	0.87	0.92
P2O5					0.31			0.21
Li2O	11.93	14.84	16.08	16.80	16.32	16.09	15.89	13.68
Na2O	4.97	4.96	5.21	6.58	6.13	4.95	5.74	5.65
K2O	3.21	3.17	3.24	3.33	3.76	4.02	3.78	3.84
MgO	1.65	2.35	1.64	1.56	1.26	1.34	0.88	1.74
CaO	2.05	1.37	2.03	1.01	0.68	0.54	0.53	1.56
ZnO					0.08	1.18	0.95	
TiO2	9.07	8.51	6.08	7.46	6.34	6.39	7.43	6.36
ZrO2	0.49	0.14	0.98	0.92	1.03	0.49	0.24	0.38
Nb2O5	0.20	0.03	0.21	0.59	0.19	0.12		
NaF								2.77
Y2O3			0.23	0.36	0.70	0.13		
La2O3			0.14	0.29				
WO3				0.49	0.76	0.19		
Ta2O5					0.07			
PbO					0.43			

	5	6	7	8	9	10
	45.16	61.27	45.22	49.22	49.49	61.72
	11.27	6.84	7.64	12.98	9.76	0.83
		0.61	0.37	2.95	0.59	
					0.47	
	22.47	20.83	18.73	12.09	14.23	15.73
		1.81	3.29	1.95	4.41	5.22
					0.61	0.15
	8.05	1.83	5.79	7.23	5.99	3.86
	6.59	1.82	6.66	1.03	9.60	3.94
				1.48		2.00
	2.96	4.43	7.71	5.29	4.06	2.85
			0.67	1.47	0.44	
	0.14	0.34	0.07	0.91	0.07	0.32
	3.22		3.55	3.39		3.38
	0.15	0.13			0.10	
					0.07	
		0.08			0.10	

	19
	61.06
	5.80
	0.99
	12.28
	5.52
	4.54
	0.38
	7.58
	0.25
	1.61

Table 1 Mole % Composition

Oxide	Ex 1	Ex 2	Ex 3
SiO2	46.63	44.52	47.70
B2O3		1.95	
P2O5			
La2O3			
TiO2	25.42	25.50	22.54
ZrO2			1.18
Nb2O5			
Ta2O5			
WO3			
Y2O3			1.23
MgO			0.86
ZnO			
BaO	1.55	1.55	1.13
SrO			0.33
Li2O	4.53	4.54	4.63
Na2O	15.40	15.45	14.52
K2O	6.47	6.49	5.88
Sb2O3	0.002	0.002	
As2O3			

Table 2 Mole % Composition

Oxide	Ex 1	Ex 2	Ex 3
SiO2	22.60	28.09	38.12
B2O3	24.52	12.12	11.50
P2O5		5.11	
La2O3	4.14	3.11	2.46
TiO2	7.55	5.28	7.62
ZrO2	2.90	3.08	2.92
Nb2O5	2.36	2.51	2.38
Ta2O5			1.27
WO3		0.95	
Y2O3		1.87	
MgO	1.97	2.09	1.99
ZnO		1.04	
BaO		1.10	5.22
SrO	11.34	9.61	3.71
Li2O	22.59	24.00	22.78
Na2O			
K2O			
Sb2O3	0.03		0.03
As2O3		0.04	

Table 3 Mole % Composition

Oxide	Ex 7	Ex 8	Comparative Ex. 1
SiO2	27.63	44.90	59.55
B2O3	11.92		7.76
P2O5	5.03	0.66	
La2O3	3.82		
TiO2	7.90	21.10	
ZrO2	3.03	2.74	
Nb2O5	2.47		
Ta2O5			
WO3	0.72		
Y2O3			
MgO	2.06		PbO = 3.31
ZnO	2.04	0.41	5.71
BaO	1.08	0.88	4.96
SrO	8.65	0.65	
Li2O	23.61	9.03	
Na2O		13.16	7.37
K2O		6.44	11.31
Sb2O3	0.03	0.02	0.03
As2O3			